

[54] **VIBRATION COMPENSATING INTERFEROMETER MIRROR DRIVE SYSTEM**

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[57] **ABSTRACT**

An interferometer mirror drive system compensates for velocity and tilt errors induced by ambient vibration, as well as providing long-term automatic alignment of the mirrors. A uniquely configured $\lambda/8$ -thick step on the fixed mirror of the interferometer introduces a 90-degree phase shift in one of two reference light beams, to produce quadrature signals which characterize the relative motion between the fixed and the driven mirrors. An electronic circuit extracts velocity and tilt data from the quadrature signals and develops error signals indicative of deviations from the desired coordinates of the moving mirror. The error signals are used to generate a set of control signals which in turn are supplied to an arrangement of drive coils attached to the moving mirror, to restore the mirror to the desired coordinates.

19 Claims, 14 Drawing Figures

